



129783

EPA WORK ASSIGNMENT NO: 041-2Z00
EPA CONTRACT NO: 68-W8-0110
FOSTER WHEELER ENVIRONMENTAL CORPORATION
ARCS II PROGRAM

FINAL
SITE INSPECTION PRIORITIZATION (SIP)
ASARCO
PERTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY
CERCLIS NO: NJD039116207

SEPTEMBER 1997

VOLUME III OF III

NOTICE

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RECOMMENDATIONS

The overall site score for the ASARCO site is 0.45 based on an area of observed soil contamination for the soil exposure pathway, and a potential to release to groundwater, surface water, and air.

The groundwater pathway score is 0.47 and was evaluated on a potential to release basis. Available data which lacks appropriate QA/QC information suggests a release to the upper aquifer; however, sampling with proper QA/QC to confirm an observed release to the Farrington Sand Aquifer from an on-site monitoring well, would only increase the site score to 0.98. The low score for the groundwater pathway is due to the deeper aquifer not being hydraulically connected to the upper aquifer and the low population served by the deeper aquifer. Based on the target information, this pathway is not a major pathway of concern.

The surface water pathway score is 0.01 based on a potential to release basis. The surface water pathway is a major pathway of concern for this site due to the presence of sensitive environments and fisheries. Available data lacking QA/QC information suggests a release to surface water, and that if an observed release were documented in a sediment sample from the Arthur Kill the site score would increase to 50.00. However, due to the industrial nature of the area, it would not be possible to attribute contamination of targets to the site. Attribution of contaminants in the surface water pathway to the site would also be difficult due to the tidal nature of the Arthur Kill.

The soil exposure pathway was evaluated based on an area of observed contamination. The low soil pathway score of 0.60 is due to the lack of a target population. The score indicates that soil exposure pathway is not of major concern and there are no feasible scenarios for the soil exposure pathway that would result in a site score above 28.5.

The air pathway is evaluated based on a potential to release basis. The air pathway score of 0.46 is due to the presence of a high population and sensitive environments within the 4-mile target distance limit. There are no feasible scenarios for this pathway that would result in a site score above 28.5.

Based on the available data and the analysis presented above, and ongoing remediation of the site in accordance with an MOA with the NJDEP, No Further Remedial Action Planned (NFRAP) is recommended for the ASARCO site.

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Record Information

1. Site Name: ASARCO
(as entered in CERCLIS)
2. Site CERCLIS Number: NJD039116207
3. Site Reviewer: Leigh Yates
4. Date: 7/31/97
5. Site Location: Perth Amboy, Middlesex Co., New Jersey
(City/County,State)
6. Congressional District:
7. Site Coordinates: Multiple
Latitude: 74°15'17.0" Longitude: 041°31'50.0"

Site Description

1. Setting: Urban
2. Current Owner: Private - Industrial
3. Current Site Status: Site with Unknown Source
4. Years of Operation: Active Site , from and to dates: 1894 to present
5. How Initially Identified: State/Local Program
6. Entity Responsible for Waste Generation:
 - Manufacturing
 - Primary Metal Industries
7. Site Activities/Waste Deposition:
 - Waste Piles
 - Drum/Container Storage
 - Tanks - Above Ground
 - Tanks - Below Ground

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Waste Description

8. Wastes Deposited or Detected Onsite:

- Organic Chemicals
- Inorganic Chemicals
- Metals

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Response Actions

9. Response/Removal Actions:

- Site Access Has Been Restricted

RCRA Information

10. For All Active Facilities, RCRA Site Status:

- Not Applicable

Demographic Information

11. Workers Present Onsite: Unknown

12. Distance to Nearest Non-Worker Individual: > 10 Feet - 1/4 Mile

13. Residential Population Within 1 Mile: 31.0

14. Residential Population Within 4 Miles: 248505.0

Water Use Information

15. Local Drinking Water Supply Source:

- No Water Withdrawals Within Target Distance Limits

16. Total Population Served by Local Drinking Water Supply Source: Not Applicable

17. Drinking Water Supply System Type for Local Drinking Water Supply Sources:

- Municipal (Services over 25 People)

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18. Surface Water Adjacent to/Draining Site:

- Other - Estuary

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3. Site Reviewer: Leigh Yates
4. Date: 7/31/97
5. Site Location: Perth Amboy, Middlesex Co., New Jersey
(City/County,State)
6. Congressional District:
7. Site Coordinates: Multiple

Latitude: 74°15'17.0"

Longitude: 041°31'50.0"

	Score
Ground Water Migration Pathway Score (Sgw)	0.47
Surface Water Migration Pathway Score (Ssw)	0.01
Soil Exposure Pathway Score (Ss)	0.60
Air Migration Pathway Score (Sa)	0.46

Site Score	0.45
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NOTE

Site names, and references to specific parcels or properties, are provided for general identification purposes only. Knowledge regarding the extent of sites will be refined as more information is developed during the RI/FS and even during implementation of the remedy.

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GROUND WATER MIGRATION PATHWAY SCORESHEET
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GROUND WATER MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release to an Aquifer Aquifer: Farrington Sand		
1. Observed Release	550	0
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	6
2c. Depth to Aquifer	5	3
2d. Travel Time	35	15
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	240
3. Likelihood of Release	550	240
Waste Characteristics		
4. Toxicity/Mobility	*	1.00E+02
5. Hazardous Waste Quantity	*	10
6. Waste Characteristics	100	6
Targets		
7. Nearest Well	50	1.80E+01
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	9.00E+00
8d. Population (lines 8a+8b+8c)	**	9.00E+00
9. Resources	5	0.00E+00
10. Wellhead Protection Area	20	0.00E+00
11. Targets (lines 7+8d+9+10)	**	2.70E+01
12. Targets (including overlaying aquifers)	**	2.70E+01
13. Aquifer Score	100	0.47
GROUND WATER MIGRATION PATHWAY SCORE (Sgw)	100	0.47

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	0
2. Potential to Release by Overland Flow		
2a. Containment	10	10
2b. Runoff	25	2
2c. Distance to Surface Water	25	25
2d. Potential to Release by Overland Flow [lines 2a(2b+2c)]	500	270
3. Potential to Release by Flood		
3a. Containment (Flood)	10	10
3b. Flood Frequency	50	25
3c. Potential to Release by Flood (lines 3a x 3b)	500	250
4. Potential to Release (lines 2d+3c)	500	500
5. Likelihood of Release	550	500
Waste Characteristics		
6. Toxicity/Persistence	*	1.00E+04
7. Hazardous Waste Quantity	*	10
8. Waste Characteristics	100	18
Targets		
9. Nearest Intake	50	0.00E+00
10. Population		
10a. Level I Concentrations	**	0.00E+00
10b. Level II Concentrations	**	0.00E+00
10c. Potential Contamination	**	0.00E+00
10d. Population (lines 10a+10b+10c)	**	0.00E+00
11. Resources	5	0.00E+00
12. Targets (lines 9+10d+11)	**	0.00E+00
13. DRINKING WATER THREAT SCORE	100	0.00

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** Maximum value not applicable.

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 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
14. Likelihood of Release (same as line 5)	550	500
Waste Characteristics		
15. Toxicity/Persistence/Bioaccumulation	*	5.00E+07
16. Hazardous Waste Quantity	*	10
17. Waste Characteristics	1000	100
Targets		
18. Food Chain Individual	50	0.00E+00
19. Population		
19a. Level I Concentrations	**	0.00E+00
19b. Level II Concentrations	**	0.00E+00
19c. Pot. Human Food Chain Contamination	**	9.00E-07
19d. Population (lines 19a+19b+19c)	**	9.00E-07
20. Targets (lines 18+19d)	**	9.00E-07
21. HUMAN FOOD CHAIN THREAT SCORE	100	0.00

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** Maximum value not applicable.

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 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
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SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
22. Likelihood of Release (same as line 5)	550	500
Waste Characteristics		
23. Ecosystem Toxicity/Persistence/Bioacc.	*	5.00E+08
24. Hazardous Waste Quantity	*	10
25. Waste Characteristics	1000	180
Targets		
26. Sensitive Environments		
26a. Level I Concentrations	**	0.00E+00
26b. Level II Concentrations	**	0.00E+00
26c. Potential Contamination	**	7.00E-03
26d. Sensitive Environments (lines 26a+26b+26c)	**	7.00E-03
27. Targets (line 26d)	**	7.00E-03
28. ENVIRONMENTAL THREAT SCORE	60	0.01
29. WATERSHED SCORE	100	0.01
30. SW: OVERLAND/FLOOD COMPONENT SCORE (Sof)	100	0.01

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** Maximum value not applicable.

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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET
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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release to Aquifer Aquifer: Terminal Moraine		
1. Observed Release	550	0
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	6
2c. Depth to Aquifer	5	5
2d. Travel Time	35	35
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	460
3. Likelihood of Release	550	460
Waste Characteristics		
4. Toxicity/Mobility/Persistence	*	1.00E+02
5. Hazardous Waste Quantity	*	10
6. Waste Characteristics	100	6
Targets		
7. Nearest Intake	50	0.00E+00
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	0.00E+00
8d. Population (lines 8a+8b+8c)	**	0.00E+00
9. Resources	5	0.00E+00
10. Targets (lines 7+8d+9)	**	0.00E+00
11. DRINKING WATER THREAT SCORE	100	0.00

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** Maximum value not applicable.

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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET
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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
12. Likelihood of Release (same as line 3)	550	460
Waste Characteristics		
13. Toxicity/Mobility/Persistence/Bioacc.	*	1.00E+05
14. Hazardous Waste Quantity	*	10
15. Waste Characteristics	1000	32
Targets		
16. Food Chain Individual	50	0.00E+00
17. Population		
17a. Level I Concentrations	**	0.00E+00
17b. Level II Concentrations	**	0.00E+00
17c. Pot. Human Food Chain Contamination	**	1.80E-07
17d. Population (lines 17a+17b+17c)	**	1.80E-07
18. Targets (lines 16+17d)	**	1.80E-07
19. HUMAN FOOD CHAIN THREAT SCORE	100	0.00

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** Maximum value not applicable.

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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET
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GROUND WATER TO SURFACE WATER MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
20. Likelihood of Release (same as line 3)	550	460
Waste Characteristics		
21. Ecosystem Tox./Mobility/Persist./Bioacc.	*	5.00E+04
22. Hazardous Waste Quantity	*	10
23. Waste Characteristics	1000	18
Targets		
24. Sensitive Environments		
24a. Level I Concentrations	**	0.00E+00
24b. Level II Concentrations	**	0.00E+00
24c. Potential Contamination	**	1.40E-03
24d. Sensitive Environments (lines 24a+24b+24c)	**	1.40E-03
25. Targets (line 24d)	**	1.40E-03
26. ENVIRONMENTAL THREAT SCORE	60	0.00
27. WATERSHED SCORE	100	0.00
28. SW: GW to SW COMPONENT SCORE (Sgs)	100	0.00

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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SOIL EXPOSURE PATHWAY SCORESHEET
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SOIL EXPOSURE PATHWAY Factor Categories & Factors RESIDENT POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
1. Likelihood of Exposure	550	550
Waste Characteristics		
2. Toxicity	*	1.00E+04
3. Hazardous Waste Quantity	*	10
4. Waste Characteristics	100	18
Targets		
5. Resident Individual	50	0.00E+00
6. Resident Population		
6a. Level I Concentrations	**	0.00E+00
6b. Level II Concentrations	**	0.00E+00
6c. Resident Population (lines 6a+6b)	**	0.00E+00
7. Workers	15	5.00E+00
8. Resources	5	0.00E+00
9. Terrestrial Sensitive Environments	***	0.00E+00
10. Targets (lines 5+6c+7+8+9)	**	5.00E+00
11. RESIDENT POPULATION THREAT SCORE	**	4.95E+04

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

*** No specific maximum value applies, see HRS for details.

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SOIL EXPOSURE PATHWAY SCORESHEET
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SOIL EXPOSURE PATHWAY Factor Categories & Factors NEARBY POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
12. Attractiveness/Accessibility	100	5.00E+00
13. Area of Contamination	100	5.00E+00
14. Likelihood of Exposure	500	5.00E+00
Waste Characteristics		
15. Toxicity	*	1.00E+04
16. Hazardous Waste Quantity	*	10
17. Waste Characteristics	100	18
Targets		
18. Nearby Individual	1	1.00E+00
19. Population Within 1 Mile	**	3.00E+00
20. Targets (lines 18+19)	**	4.00E+00
21. NEARBY POPULATION THREAT SCORE	**	3.60E+02
SOIL EXPOSURE PATHWAY SCORE (Ss)	100	0.60

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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AIR PATHWAY SCORESHEET
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AIR MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	0
2. Potential to Release		
2a. Gas Potential to Release	500	175
2b. Particulate Potential to Release	500	196
2c. Potential to Release	500	196
3. Likelihood of Release	550	196
Waste Characteristics		
4. Toxicity/Mobility	*	2.00E+00
5. Hazardous Waste Quantity	*	10
6. Waste Characteristics	100	2
Targets		
7. Nearest Individual	50	2.00E+01
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	7.70E+01
8d. Population (lines 8a+8b+8c)	**	7.70E+01
9. Resources	5	0.00E+00
10. Sensitive Environments		
10a. Actual Contamination	***	0.00E+00
10b. Potential Contamination	***	4.08E-01
10c. Sens. Environments (lines 10a+10b)	***	4.08E-01
11. Targets (lines 7+8d+9+10c)	**	9.74E+01
AIR MIGRATION PATHWAY SCORE (Sa)	100	4.63E-01

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

*** No specific maximum value applies, see HRS for details.

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WASTE QUANTITY
ASARCO - 08/04/97

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Contaminated Soil

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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WASTE QUANTITY
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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Contaminated Soil		
b. Source Type	Contaminated Soil		
c. Secondary Source Type	N.A.		
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	1.00
e. Source Volume/Area Value	2.94E-05		
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00		
g. Data Complete?	NO		
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	0.00E+00		
i. Data Complete?	NO		
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	2.94E-05		

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Arsenic	< 2	NO	0.0E+00	ppm
Benz(a)anthracene	< 2	NO	0.0E+00	ppm
Cadmium	< 2	NO	0.0E+00	ppm
Chrysene	< 2	NO	0.0E+00	ppm
Copper	< 2	NO	0.0E+00	ppm
Fluoranthene	< 2	NO	0.0E+00	ppm
Lead	< 2	NO	0.0E+00	ppm
Nickel	< 2	NO	0.0E+00	ppm
Phenanthrene	< 2	NO	0.0E+00	ppm
Pyrene	< 2	NO	0.0E+00	ppm
Silver	< 2	NO	0.0E+00	ppm

Documentation for Source Type:

Analytical results indicate that soils are contaminated. Ref. 14,

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WASTE QUANTITY
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pp. 3, 13 thru 16 of 67.

Documentation for Source Hazardous Substances:

Analytical results indicate elevated levels of Arsenic, Cadmium, Copper, Lead, Nickel, and PAHs. Ref. 14, pp. 2 thru 5, 14 thru 17, 40, 43, 46, 49 of 67. The analytical data was used for screening purposes since the data was not validated.

Documentation for Source Area:

The area of 1 square foot was estimated since the actual surface area is unknown.

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WASTE QUANTITY
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3. SITE HAZARDOUS WASTE QUANTITY SUMMARY

No. Source ID	Migration Pathways	Vol. or Area Value (2e)	Constituent or Wastestream Value (2f,2h)	Hazardous Waste Qty. Value (2k)
1 Contaminated Soil	GW-SW-SE-A	2.94E-05	0.00E+00	2.94E-05

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WASTE QUANTITY
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4. PATHWAY HAZARDOUS WASTE QUANTITY AND WASTE CHARACTERISTICS SUMMARY TABLE

Migration Pathway	Contaminant Values		HWQVs*	WCVs**
Ground Water	Toxicity/Mobility	1.00E+02	10	6
SW: Overland Flow, DW	Tox./Persistence	1.00E+04	10	18
SW: Overland Flow, HFC	Tox./Persis./Bioacc.	5.00E+07	10	100
SW: Overland Flow, Env	Etox./Persis./Bioacc.	5.00E+08	10	180
SW: GW to SW, DW	Tox./Persistence	1.00E+02	10	6
SW: GW to SW, HFC	Tox./Persis./Bioacc.	1.00E+05	10	32
SW: GW to SW, Env	Etox./Persis./Bioacc.	5.00E+04	10	18
Soil Exposure: Resident	Toxicity	1.00E+04	10	18
Soil Exposure: Nearby	Toxicity	1.00E+04	10	18
Air	Toxicity/Mobility	2.00E+00	10	2

* Hazardous Waste Quantity Factor Values

** Waste Characteristics Factor Category Values

Note: SW = Surface Water
 GW = Ground Water
 DW = Drinking Water Threat
 HFC = Human Food Chain Threat
 Env = Environmental Threat

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GROUND WATER PATHWAY AQUIFER SUMMARY
ASARCO - 08/04/97

No. Aquifer ID	Type	Overlaying No.	Inter- Connected with	Likelihood of Release	Targets
1 Terminal Moraine	Non K	0	0	460	0.00E+00
2 Farrington Sand	Non K	1	0	240	2.70E+01

Containment

No.	Source ID	HWQ Value	Containment Value
1	Contaminated Soil	2.94E-05	10
=====			
	Containment Factor		10

Documentation for Ground Water Containment, Source Contaminated Soil:

There is no liner under contaminated soil, and there is no cover over the soil. Ref. 14, p. 2 of 67.

Net Precipitation

Net Precipitation (inches)

N.A.

10/11/97
10/11/97
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GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Terminal Moraine
AQUIFER
ASARCO - 08/04/97

Aquifer: Terminal Moraine

Type of Aquifer: Non Karst

Overlaying Aquifer: 0

Interconnected with: 0

Documentation for Terminal Moraine Aquifer:

The terminal moraine ranges in thickness under the site from 0 to 40 feet and is composed of red clay, sand, gravel, and boulders. Ref. 5, pp. 11, 72 of 89.

OBSERVED RELEASE

No.	Well ID	Well Type	Distance (miles)	Level of Contamination
- N/A and/or data not specified				

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Observed Release Factor	0
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GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Terminal Moraine
AQUIFER
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POTENTIAL TO RELEASE

Containment

Containment Factor	10	
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Net Precipitation

Net Precipitation Factor	6	
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Depth to Aquifer

A. Depth of Hazardous Substances	0.50	feet
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Documentation for Depth of Hazardous Substances:

Soil samples were obtained from 0 to 6". Ref. 14, p. 2 of 67.

B. Depth to Aquifer from Surface	0.00	feet
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Documentation for Depth to Aquifer from Surface :

The depth to the Terminal Moraine layer is between 0 and 40 feet.
Ref. 5, pp. 11, 72 of 89; Ref. 19, pp. 4, and 5 of 14.

C. Depth to Aquifer (B - A)	0.00	feet
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Depth to Aquifer Factor	5	
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Travel Time

Are All Layers Karst?	NO	
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AQUIFER
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Documentation for Karst Layers:

The terminal moraine consists of red clay and is not considered to be Karst. Ref. 19, pp. 2 thru 14 of 14.

Thickness of Layer(s) with Lowest Conductivity 0.00 feet

Documentation for Thickness of Layers with Lowest Conductivity:

The terminal moraine exists at the surface in some areas of the site since the thickness ranges from 0 to 40 feet below the ground surface. Ref. 19, pp. 2 thru 14 of 14.

Hydraulic Conductivity (cm/sec) 0.0E-00

Documentation for Hydraulic Conductivity:

There are no layers between the terminal moraine and the ground surface. Ref. 19, pp. 2 thru 14 of 14.

Travel Time Factor 35

=====

Potential to Release Factor	460
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PREScore 4.0
GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Farrington Sand
AQUIFER
ASARCO - 08/04/97

Aquifer: Farrington Sand

Type of Aquifer: Non Karst

Overlaying Aquifer: 1

Interconnected with: 0

Documentation for Farrington Sand Aquifer:

The Farrington sand aquifer consists of coarse to fine-grained sand and is approximately 25 feet thick. This aquifer is underlain by the Raritan Fire Clay which overlies bedrock. Ref. 22, pp. 14, and 16 of 30.

OBSERVED RELEASE

No.	Well ID	Well Type	Distance (miles)	Level of Contamination
-----	---------	-----------	---------------------	------------------------

- N/A and/or data not specified

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Observed Release Factor	0
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GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Farrington Sand
AQUIFER
ASARCO - 08/04/97

POTENTIAL TO RELEASE

Containment

Containment Factor 10

Net Precipitation

Net Precipitation Factor 6

Depth to Aquifer

A. Depth of Hazardous Substances 0.50 feet

Documentation for Depth of Hazardous Substances:

Soil samples were obtained from 0 to 6". Ref. 14, p. 2 of 67,

B. Depth to Aquifer from Surface 70.00 feet

Documentation for Depth to Aquifer from Surface :

The depth to the Farrington Sand is approximately 70 feet below the ground surface. Ref. 5, p. 12 of 89.

C. Depth to Aquifer (B - A) 69.50 feet

Depth to Aquifer Factor 3

Travel Time

Are All Layers Karst? NO

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GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Farrington Sand
AQUIFER
ASARCO - 08/04/97

Documentation for Karst Layers:

The Farrington Sand Aquifer is not described as being Karst. Ref. 22, p. 16 of 30.

Thickness of Layer(s) with Lowest Conductivity 70.00 feet

Documentation for Thickness of Layers with Lowest Conductivity:

Both the terminal moraine and Woodbridge Clay lie above the Farrington Sand at a combined thickness of 70 feet. Ref. 19, p. 8 of 14; Ref. 5, pp. 11, 72 of 89; Ref. 21, p. 5 of 5.

Hydraulic Conductivity (cm/sec) 1.0E-07

Documentation for Hydraulic Conductivity:

The hydraulic conductivity of the Woodbridge Clay is 10×10^{-7} cm/sec. Ref. 19, p. 8 of 14; Ref. 5, pp. 11, 72 of 89; Ref. 21, p. 5 of 5.

Travel Time Factor 15

=====

Potential to Release Factor	240
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PREScore 4.0
GROUND WATER PATHWAY WASTE CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Arsenic	10000	1.00E-02	1.00E+02
Benz(a)anthracene	1000	2.00E-07	2.00E-04
Cadmium	10000	2.00E-03	2.00E+01
Chrysene	10	2.00E-07	2.00E-06
Copper	0	1.00E-02	0.00E+00
Fluoranthene	100	2.00E-05	2.00E-03
Lead	10000	2.00E-05	2.00E-01
Nickel	10000	2.00E-05	2.00E-01
Phenanthrene	0	2.00E-03	0.00E+00
Pyrene	100	2.00E-05	2.00E-03
Silver	100	2.00E-05	2.00E-03

PREScore 4.0
GROUND WATER PATHWAY WASTE CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Well No.	Observed Release Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
-------------	---	-------------------	-------------------	--------------------------------

- N/A and/or data not specified

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Terminal Moraine
ASARCO - 08/04/97

Toxicity/Mobility Value from Source Hazardous Substances:	1.00E+02
Toxicity/Mobility Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Mobility Factor:	1.00E+02
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	6

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Terminal Moraine
ASARCO - 08/04/97

Population by Well

No.	Well ID	Sample Type	Distance (miles)	Level of Contamination Population
-----	---------	-------------	---------------------	--------------------------------------

- N/A and/or data not specified

Level I Population Factor: 0.00

Level II Population Factor: 0.00

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Terminal Moraine
ASARCO - 08/04/97

Potential Contamination by Distance Category

Distance Category (miles)	Population	Value
> 0 to 1/4	0.0	0.00E+00
> 1/4 to 1/2	0.0	0.00E+00
> 1/2 to 1	0.0	0.00E+00
> 1 to 2	0.0	0.00E+00
> 2 to 3	0.0	0.00E+00
> 3 to 4	0.0	0.00E+00

Potential Contamination Factor: 0.000

Nearest Well

Level of Contamination: N.A.

Nearest Well Factor: 0.00E+00

Resources

Resource Use: NO

Resource Factor: 0.00E+00

Documentation for Resources:

Groundwater is not known to be used as a resource within 4 miles of the site. Ref. 27, p. 1 of 1; Ref. 28, p. 1 of 1; Ref. 29, p. 1 of 1; Ref. 30, p. 1 of 1; Ref. 31, p. 1 of 1; Ref. 32, p. 1 of 1.

Wellhead Protection Area

No wellhead protection area

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Terminal Moraine
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Wellhead Protection Area Factor: 0.00E+00

Documentation for Wellhead Protection Area:

There is no designated wellhead protection area within 4 miles of the site. Ref. 26, p. 1 of 1.

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Farrington Sand
ASARCO - 08/04/97

Population by Well

No.	Well ID	Sample Type	Distance (miles)	Level of Contamination Population
-----	---------	-------------	---------------------	--------------------------------------

- N/A and/or data not specified

Level I Population Factor: 0.00

Level II Population Factor: 0.00

0.00 0.00
0.00 0.00
0.00 0.00

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Farrington Sand
ASARCO - 08/04/97

Potential Contamination by Distance Category

Distance Category (miles)	Population	Value
> 0 to 1/4	0.0	0.00E+00
> 1/4 to 1/2	0.0	0.00E+00
> 1/2 to 1	40.0	1.70E+00
> 1 to 2	121.0	3.00E+00
> 2 to 3	14.0	2.00E-01
> 3 to 4	402.0	4.20E+00

Potential Contamination Factor: 9.000

Documentation for Target Population > 0 to 1/4 mile Distance Category:

No well use between 0 and 0.25 miles. Ref. 23, pp. 18, 19, 27, 28 of 28.

Documentation for Target Population > 1/4 to 1/2 mile Distance Category:

No known groundwater use between 0.25 miles and 0.5 miles. Ref. 23, pp. 18, 19, 27, 28 of 28.

Documentation for Target Population > 1/2 to 1 mile Distance Category:

40 persons use wells between 0.5 and 1 mile from the site. Ref. 23, pp. 18, 19, 27, 28 of 28. The wells are screened in the Farrington Sand aquifer. Re. 25, pp. 6, 9, 10, of 17.

Documentation for Target Population > 1 to 2 miles Distance Category:

121 persons use wells in the 1 to 2 mile radius. Ref. 23, pp. 18, 19, 27, 28 of 28. The wells are screened in the Farrington Sand aquifer. Ref. 25, pp. 6, 9, 10 of 17.

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Farrington Sand
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Documentation for Target Population > 2 to 3 miles Distance Category:

14 persons use wells in the 2 to 3 mile radius. Ref. 23, pp. 18, 19, 27, 28 of 28. The wells are screened in the Farrington Sand Aquifer. Ref. 25, pp. 6, 9, 10 of 17.

Documentation for Target Population > 3 to 4 miles Distance Category:

402 persons use wells within 3 and 4 miles of the site. Ref. 23, pp. 18, 19, 27, 28 of 28. The wells are screened in the Farrington Sand aquifer. Ref. 25, pp. 6, 9, 10 of 17.

Nearest Well

Level of Contamination: Potential
Distance in miles: 0.50

Nearest Well Factor: 1.80E+01

Documentation for Nearest Well:

There are no known groundwater users within 0.5 miles of the site. Ref. 23, pp. 1 thru 6 of 6; Ref. 24, pp. 1 and 2 of 2; Ref. 25, pp. 1 thru 17 of 17.

Resources

Resource Use: NO

Resource Factor: 0.00E+00

Documentation for Resources:

Groundwater is not known to be used as a resource within 4 miles of the site. Ref. 27, p. 1 of 1; Ref. 28, p. 1 of 1; Ref. 29, p. 1 of 1; Ref. 30, p. 1 of 1; Ref. 31, p. 1 of 1; Ref. 32, p. 1 of 1.

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Farrington Sand
ASARCO - 08/04/97

Wellhead Protection Area

No wellhead protection area

Wellhead Protection Area Factor: 0.00E+00

Documentation for Wellhead Protection Area:

There are no designated wellhead protection areas within 4 miles of the site. Ref. 26, p. 1 of 1.

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SURFACE WATER PATHWAY SEGMENT SUMMARY
ASARCO - 08/04/97

No. Segment ID	Segment Type	Water Type	Start Point (mi)	End Point (mi)	Average Flow (cfs)
1 Arthur Kill	Coastal Ti	Salt	0.00	3.00	N.A.
2 Raritan Bay	Coastal Ti	Salt	3.00	11.00	N.A.
3 Kill Van Kull&Newar	Coastal Ti	Salt	11.00	15.00	N.A.

Documentation for segment: Arthur Kill:

The Arthur Kill is tidally influenced and joins the Raritan River 3 miles away and the Kill Van Kull and Newark Bay 11 miles away. Ref. 35, p. 1 of 1.

Documentation for segment: Raritan Bay:

The Raritan River and Raritan Bay are tidally influenced from 3 miles to 15 miles from the PPE. Ref. 35, p. 1 of 1.

Documentation for segment: Kill Van Kull&Newar:

Newark Bay and the Arthur Kill are tidally influenced from 11 to 15 miles from the PPE. Ref. 35, p. 1 of 1.

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
ASARCO - 08/04/97

OBSERVED RELEASE

No. Sample ID	Sample Type	Distance (miles)	Level of Contamination		
			DW	HFC	Env

- N/A and/or data not specified

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Observed Release Factor	0
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 SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
 RELEASE
 ASARCO - 08/04/97

POTENTIAL TO RELEASE

Potential to Release by Overland Flow

Containment

No.	Source ID	HWQ Value	Containment Value
1	Contaminated Soil	2.94E-05	10

=====

Containment Factor: 10

Documentation for Overland Flow Containment, Source Contaminated Soil:

No containment exists for the contaminated soil. Ref. 13, p. 2 of 3.

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
ASARCO - 08/04/97

Distance to Surface Water

Distance to Surface Water: 0.0 feet
Distance to Surface Water Factor: 25

Documentation for Distance to surface Water:

The site lies adjacent to the Arthur Kill. Ref. 5, p. 9 of 89.

Runoff

A. Drainage Area: 68.0 acres

Documentation for Drainage Area:

The size of the ASARCO site is 68 acres. Ref. 3, p. 1 of 17; Ref. 4, p. 1 of 6.

B. 2-year, 24-hour Rainfall: 3.3 inches

Documentation for Rainfall:

The 2-year 24-hour rainfall is 3.3 inches. Ref. 37, p. 2 of 2.

C. Soil Group: C
Moderately-fine textured soils with low infiltration rates

Documentation for Soil Group:

Unpaved portions of the site are either slag or ash fill, or clay and sand soils. Ref. 5, pp. 10, 71 of 89; Ref. 19, pp. 4, 5 of 14.

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
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Runoff Factor: 2

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Potential to Release by Overland Flow Factor: 270

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SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Arsenic	10000	1.00E+00	1.00E+04
Benz(a)anthracene	1000	1.00E+00	1.00E+03
Cadmium	10000	1.00E+00	1.00E+04
Chrysene	10	1.00E+00	1.00E+01
Copper	0	1.00E+00	0.00E+00
Fluoranthene	100	1.00E+00	1.00E+02
Lead	10000	1.00E+00	1.00E+04
Nickel	10000	1.00E+00	1.00E+04
Phenanthrene	0	1.00E+00	0.00E+00
Pyrene	100	1.00E+00	1.00E+02
Silver	100	1.00E+00	1.00E+02

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SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Sample Observed Release No.	Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
--------------------------------	---------------------	-------------------	----------------------	-----------------------------------

- N/A and/or data not specified

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Toxicity/Persistence Value from Source Hazardous Substances:	1.00E+04
Toxicity/Persistence Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Persistence Factor:	1.00E+04
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	18

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

- N/A and/or data not specified

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

- N/A and/or data not specified

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 08/04/97 BY SP-10/MLL

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

Intake	Distance Along the In-water Segment from the Probable Point of Entry (miles)	Population
--------	--	------------

- N/A and/or data not specified

=====

Population Served by Level I Intakes: 0.0

Level I Population Factor: 0.00E+00

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Level II Concentrations

Intake	Distance Along the In-water Segment from the Probable Point of Entry (miles)	Population
--------	--	------------

- N/A and/or data not specified

Population Served by Level II Intakes: 0.0

Level II Population Factor: 0.00E+00

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Potential Contamination

Intake ID	Average Annual Flow (cfs)	Population Served
-----------	------------------------------	----------------------

- N/A and/or data not specified

Documentation for Intake :

No surface water intakes within TDL. Ref. 36, p. 1 of 1.

Type of Surface Water Body	Total Population	Dilution-Weighted Population
-------------------------------	---------------------	---------------------------------

- N/A and/or data not specified

=====

Dilution-Weighted Population Served
by Potentially Contaminated Intakes: 0.0

Potential Contamination Factor: 0.0

Nearest Intake

Location of Nearest Drinking Water Intake: N.A.

Nearest Intake Factor: 0.00

Resources

Resource Use: NO

Resource Value: 0.00E+00

Documentation for Resources:

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
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None of the surface water bodies within the TDL are classified as being suitable as a source of potable, industrial, or agricultural supply. Ref. 34, pp. 3, 4 of 13; Ref. 35, p. 1 of 1.

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SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Arsenic	10000	1.00E+00	5.00E+02	5.00E+06
Benz(a)anthracene	1000	1.00E+00	5.00E+04	5.00E+07
Cadmium	10000	1.00E+00	5.00E+03	5.00E+07
Chrysene	10	1.00E+00	5.00E+02	5.00E+03
Copper	0	1.00E+00	5.00E+04	0.00E+00
Fluoranthene	100	1.00E+00	5.00E+03	5.00E+05
Lead	10000	1.00E+00	5.00E+03	5.00E+07
Nickel	10000	1.00E+00	5.00E+02	5.00E+06
Phenanthrene	0	1.00E+00	5.00E+01	0.00E+00
Pyrene	100	1.00E+00	5.00E+03	5.00E+05
Silver	100	1.00E+00	5.00E+01	5.00E+03

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SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Sample No.	Observed Release Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
---------------	---	-------------------	----------------------	-------------------------	---

- N/A and/or data not specified

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Toxicity/Persistence/Bioaccumulation Value from Source Hazardous Substances:	5.00E+07
Toxicity/Persistence/Bioaccumulation Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Persistence/Bioaccumulation Factor:	5.00E+07
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	100

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

- N/A and/or data not specified

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

- N/A and/or data not specified

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

Fishery	Annual Production (pounds)	Human Food Chain Population Value
- N/A and/or data not specified		

=====

Sum of Human Food Chain Population Values: 0.00E+00

Level I Concentrations Factor: 0.00E+00

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level II Concentrations

Fishery	Annual Production (pounds)	Human Food Chain Population Value
- N/A and/or data not specified		

=====

Sum of Human Food Chain Population Values: 0.00E+00

Level II Concentrations Factor: 0.00E+00

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Potential Contamination

Fishery	Annual Production (pounds)	Type of Surface Water Body	Average Annual Flow (cfs)	Pop. Value (Pi)	Dilution Weight (Di)	Pi*Di
1 Arthur Kill	1.0	Coastal	0	0.0	1.00E-04	3.00E-06
2 Raritan Bay	1.0	Coastal	0	0.0	1.00E-04	3.00E-06
3 Kill Van Kull&Newa	1.0	Coastal	0	0.0	1.00E-04	3.00E-06

=====

Sum of (Pi*Di): 9.00E-06

Potential Human Food Chain Contamination Factor: 9.00E-07

Documentation for Arthur Kill Fishery:

A default value of 1 lb. per year was assigned since the exact location of fishery production was not identified. Ref. 40, p. 2 of 2.

Documentation for Raritan Bay Fishery:

A default value of 1 lb. per year was assigned since the actual location of fish production was not assigned. Ref. 40, p. 2 of 2.

Documentation for Kill Van Kull&Newar Fishery:

A default value of 1 lb. per year was assigned since the exact location of the fishery is unknown. Ref. 40, p. 2 of 2.

Food Chain Individual

Location of Nearest Fishery: Arthur Kill
Distance from the Probable Point of Entry: 0.00 miles
Type of Surface Water Body: Coastal Tidal Area
Dilution Weight: 0.0001000

COASTAL TIDAL AREA
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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level of Contamination: Potential

Food Chain Individual Factor: 0.00

Documentation for Arthur Kill:

The Arthur Kill is tidally influenced and joins the Raritan River
3 miles away and the Kill Van Kull and Newark Bay 11 miles away.
Ref. 35, p. 1 of 1.

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PREScore 4.0
 SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
 CHARACTERISTICS
 ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Arsenic	100	1.00E+00	5.00E+02	5.00E+04
Benz(a)anthracene	10000	1.00E+00	5.00E+04	5.00E+08
Cadmium	1000	1.00E+00	5.00E+03	5.00E+06
Chrysene	1000	1.00E+00	5.00E+02	5.00E+05
Copper	100	1.00E+00	5.00E+04	5.00E+06
Fluoranthene	1000	1.00E+00	5.00E+03	5.00E+06
Lead	1000	1.00E+00	5.00E+03	5.00E+06
Nickel	1000	1.00E+00	5.00E+02	5.00E+05
Phenanthrene	1000	1.00E+00	5.00E+01	5.00E+04
Pyrene	10000	1.00E+00	5.00E+03	5.00E+07
Silver	10000	1.00E+00	5.00E+01	5.00E+05

2000-08-04
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 TO: 10:10:00

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Sample No.	Observed Release Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
---------------	---	---------------------------	----------------------	-------------------------	--

- N/A and/or data not specified

NOTES: 11/11/97
TO: 11/11/97

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

Ecotoxicity/Persistence/Bioaccumulation Value from Source Hazardous Substances:	5.00E+08
Ecotoxicity/Persistence/Bioaccumulation Value from Observed Release Hazardous Substances:	0.00E+00
Ecotoxicity/Persistence/Bioaccumulation Factor:	5.00E+08
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	180

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011.000000
011.000000

- N/A and/or data not specified

- N/A and/or data not specified

- N/A and/or data not specified

- N/A and/or data not specified

10-11-60

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

Sensitive Environment	Distance from Probable Point of Entry to Sensitive Env. (miles)	Sensitive Environment Value
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- N/A and/or data not specified

Sum of Sensitive Environments Values: 0

Wetlands

Wetland	Distance from Probable Point of Entry to Wetland (miles)	Wetlands Frontage (miles)
---------	--	------------------------------

- N/A and/or data not specified

Total Wetlands Frontage: 0.00 Miles Total Wetlands Value: 0

=====

Sum of Sensitive Environments Value + Wetlands Value: 0.00E+00

Level I Concentrations Factor: 0.00E+00

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

Level II Concentrations

Sensitive Environment	Distance from Probable Point of Entry to Sensitive Env. (miles)	Sensitive Environment Value
-----------------------	---	-----------------------------------

- N/A and/or data not specified

Sum of Sensitive Environments Values: 0

Wetlands

Wetland	Distance from Probable Point of Entry to Wetland (miles)	Wetlands Frontage (miles)
---------	--	------------------------------

- N/A and/or data not specified

Total Wetlands Frontage: 0.00 Miles Total Wetlands Value: 0

=====

Sum of Sensitive Environments Value + Wetlands Value: 0.00E+00

Level II Concentrations Factor: 0.00E+00

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

Potential Contamination

Sensitive Environments

Type of Surface Water Body	Sensitive Environment	Sensitive Environment Value
Coastal Tidal Area	1 Perigrin Falcon	50
Coastal Tidal Area	2 Least Tern	50
Coastal Tidal Area	3 Yellow Crowned Nigh	50

Wetlands

Type of Surface Water Body	Sensitive Environment	Wetlands Frontage	Wetlands Value
Coastal Tidal Area	5 wetlands	10.00	250
Coastal Tidal Area	6 wetlands	25.00	500
Coastal Tidal Area	7 wetlands	5.00	150

Documentation for Sensitive Environment Perigrin Falcon:

Records of Perigrin Falcon use within 15 miles of the site along the surface water pathway. Ref. 39, pp. 4, 8, 9 of 32.

Documentation for Sensitive Environment Least Tern:

The Least Tern which is a State Endangered species frequents areas along the TDL. Ref. 39, pp. 4, 8, 9 of 32.

Documentation for Sensitive Environment Yellow Crowned Nigh:

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

The State Threatened Yellow-Crowned Night Heron has been reported along the TDL. Ref. 39, pp. 4, 8, 9 of 32.

Documentation for Sensitive Environment wetlands:

It is estimated that there are 10 miles of wetland frontage along the tidal portions of the Raritan River and Raritan Bay. Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment wetlands:

It is estimated that there are 25 miles of wetland frontage along the Arthur Kill. Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment wetlands:

It is estimated that there are five miles of wetland frontage along the Kill Van Kull and Newark Bay within the TDL. Ref. 38, p. 1 of 1.

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SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
 ASARCO - 08/04/97

Type of Surface Water Body	Sum of Sens. Environment Values(Sj)	Sum of Wetland Frontage Values(Wj)	Dilution Weight (Dj)	Dj(Wj+Sj)
Coastal Tidal Waters	150	500	1.00E-04	6.50E-02

Sum of Dj(Wj+Sj): 6.50E-02
 Sum of Dj(Wj+Sj)/10: 6.50E-03

=====
 Potential Contamination Sensitive Environment Factor: 7.00E-03

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SURFACE WATER PATHWAY GW TO SW CONTAINMENT SUMMARY
ASARCO - 08/04/97

Containment

No.	Source ID	HWQ Value	Containment Value
1	Contaminated Soil	2.94E-05	10
=====			
	Containment Factor		10

Documentation for Ground Water Containment, Source Contaminated Soil:

There is no liner under contaminated soil, and there is no cover over the soil. Ref. 14, p. 2 of 67.

Net Precipitation

Net Precipitation (inches) 0.00

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SURFACE WATER PATHWAY GW TO SW COMPONENT LIKELIHOOD OF RELEASE
ASARCO - 08/04/97

Aquifer: Terminal Moraine

Type of Aquifer: Non Karst

Overlaying Aquifer: 0

Interconnected with: 0

Documentation for Terminal Moraine Aquifer:

The terminal moraine ranges in thickness under the site from 0 to 40 feet and is composed of red clay, sand, gravel, and boulders. Ref. 5, pp. 11, 72 of 89.

OBSERVED RELEASE

No.	Well ID	Well Type	Distance (miles)	Level of Contamination
- N/A and/or data not specified				

=====

Observed Release Factor

0

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SURFACE WATER PATHWAY GW TO SW COMPONENT LIKELIHOOD OF RELEASE
ASARCO - 08/04/97

POTENTIAL TO RELEASE

Ground Water to Surface Water Angle

Probable Point of Entry	0.00	miles
Angle Theta	90	

Documentation for Ground to Surface Water PPE and Angle Theta:

The site lies perpendicular to the Arthur Kill. Ref. 5, p. 68 of 89.

Containment

Containment Factor	10
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Net Precipitation

Net Precipitation Factor	6
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Depth to Aquifer

A. Depth of Hazardous Substances	0.50	feet
----------------------------------	------	------

Documentation for Depth of Hazardous Substances:

Soil samples were obtained from 0 to 6". Ref. 14, p. 2 of 67.

B. Depth to Aquifer from Surface	0.00	feet
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SURFACE WATER
PATHWAY
GW TO SW COMPONENT
LIKELIHOOD OF RELEASE
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SURFACE WATER PATHWAY GW TO SW COMPONENT LIKELIHOOD OF RELEASE
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Documentation for Depth to Aquifer from Surface :

The depth to the Terminal Moraine layer is between 0 and 40 feet.
Ref. 5, pp. 11, 72 of 89; Ref. 19, pp. 4, and 5 of 14.

C. Depth to Aquifer (B - A)	0.00	feet
Depth to Aquifer Factor	5	

Travel Time

Are All Layers Karst?	NO
-----------------------	----

Documentation for Karst Layers:

The terminal moraine consists of red clay and is not considered to be Karst. Ref. 19, pp. 2 thru 14 of 14.

Thickness of Layer(s) with Lowest Conductivity	0.00	feet
--	------	------

Documentation for Thickness of Layers with Lowest Conductivity:

The terminal moraine exists at the surface in some areas of the site since the thickness ranges from 0 to 40 feet below the ground surface. Ref. 19, pp. 2 thru 14 of 14.

Hydraulic Conductivity (cm/sec)	0.0E-00
---------------------------------	---------

Documentation for Hydraulic Conductivity:

There are no layers between the terminal moraine and the ground surface. Ref. 19, pp. 2 thru 14 of 14.

Travel Time Factor	35
--------------------	----

=====

Potential to Release Factor	460
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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT WASTE CHARACTERISTICS
ASARCO - 08/04/97

7/2/97
10:00
10:00

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT WASTE CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Factor Value	Persist. Value	Mobility Value	Toxicity/ Mobility/ Persistence
Arsenic	10000	1.00E+00	1.00E-02	1.00E+02
Benz(a)anthracene	1000	1.00E+00	2.00E-07	2.00E-04
Cadmium	10000	1.00E+00	2.00E-03	2.00E+01
Chrysene	10	1.00E+00	2.00E-07	2.00E-06
Copper	0	1.00E+00	1.00E-02	0.00E+00
Fluoranthene	100	1.00E+00	2.00E-05	2.00E-03
Lead	10000	1.00E+00	2.00E-05	2.00E-01
Nickel	10000	1.00E+00	2.00E-05	2.00E-01
Phenanthrene	0	1.00E+00	2.00E-03	0.00E+00
Pyrene	100	1.00E+00	2.00E-05	2.00E-03
Silver	100	1.00E+00	2.00E-05	2.00E-03

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT WASTE CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Observed Release Hazardous Substance	Toxicity Factor Value	Persist. Value	Toxicity/ Persistence
- N/A and/or data not specified			

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Toxicity/Mobility/Persistence Value from Source Hazardous Substances:	1.00E+02
Toxicity/Mobility/Persistence Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Mobility/Persistence Factor:	1.00E+02
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	6

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

- N/A and/or data not specified

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

- N/A and/or data not specified

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

Intake	Distance Along the In-water Segment from the Probable Point of Entry (miles)	Population
--------	--	------------

- N/A and/or data not specified

=====

Population Served by Level I Intakes: 0.0

Level I Population Factor: 0.00E+00

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Level II Concentrations

Intake	Distance Along the In-water Segment from the Probable Point of Entry (miles)	Population
--------	--	------------

- N/A and/or data not specified

=====
Population Served by Level II Intakes: 0.0

Level II Population Factor: 0.00E+00

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08/04/97

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT TARGETS
ASARCO - 08/04/97

Potential Contamination

Intake ID	Average Annual Flow (cfs)	Population Served
- N/A and/or data not specified		

Documentation for Intake :

No surface water intakes within TDL. Ref. 36, p. 1 of 1.

Type of Surface Water Body	Total Population	Dilution-Weighted Population
- N/A and/or data not specified		

=====

Dilution-Weighted Population Served
by Potentially Contaminated Intakes: 0.0

Potential Contamination Factor: 0.0

Nearest Intake

Location of Nearest Drinking Water Intake: N.A.

Nearest Intake Factor: 0.00

Resources

Resource Use: NO

Resource Value: 0.00E+00

Documentation for Resources:

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SW PATHWAY: GW TO SW COMPONENT DRINKING WATER THREAT TARGETS
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None of the surface water bodies within the TDL are classified as being suitable as a source of potable, industrial, or agricultural supply. Ref. 34, pp. 3, 4 of 13; Ref. 35, p. 1 of 1.

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 SW PATHWAY: GW TO SW COMPONENT HUMAM FOOD CHAIN THREAT WASTE
 CHARACTERISTICS
 ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Persist. Value	Mobility Value	Bio- accum. Value	Tox./Mobil./ Persistence/ Bioaccum. Value
Arsenic	10000	1.00E+00	1.00E-02	5.00E+02	5.00E+04
Benz(a)anthracene	1000	1.00E+00	2.00E-07	5.00E+04	1.00E+01
Cadmium	10000	1.00E+00	2.00E-03	5.00E+03	1.00E+05
Chrysene	10	1.00E+00	2.00E-07	5.00E+02	1.00E-03
Copper	0	1.00E+00	1.00E-02	5.00E+04	0.00E+00
Fluoranthene	100	1.00E+00	2.00E-05	5.00E+03	1.00E+01
Lead	10000	1.00E+00	2.00E-05	5.00E+03	1.00E+03
Nickel	10000	1.00E+00	2.00E-05	5.00E+02	1.00E+02
Phenanthrene	0	1.00E+00	2.00E-03	5.00E+01	0.00E+00
Pyrene	100	1.00E+00	2.00E-05	5.00E+03	1.00E+01
Silver	100	1.00E+00	2.00E-05	5.00E+01	1.00E-01

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SW PATHWAY: GW TO SW COMPONENT HUMAM FOOD CHAIN THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Observed Release Hazardous Substance	Toxicity Value	Persist. Value	Bio- accum. Value	Toxicity/ Persistence Bioaccum. Value
--	-------------------	-------------------	-------------------------	--

- N/A and/or data not specified

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SW PATHWAY: GW TO SW COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Toxicity/Mobility/Persistence/Bioaccumulation Value from Source Hazardous Substances:	1.00E+05
Toxicity/Mobility/Persistence/Bioaccumulation Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Mobility/Persistence/Bioaccumulation Factor:	1.00E+05
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	32

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SW PATHWAY: GW TO SW COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

- N/A and/or data not specified

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

- N/A and/or data not specified

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SW PATHWAY: GW TO SW COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

Fishery	Annual Production (pounds)	Human Food Chain Population Value
- N/A and/or data not specified		

=====

Sum of Human Food Chain Population Values: 0.00E+00

Level I Concentrations Factor: 0.00E+00

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SW PATHWAY: GW TO SW COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level II Concentrations

Fishery	Annual Production (pounds)	Human Food Chain Population Value
---------	-------------------------------	--------------------------------------

- N/A and/or data not specified

=====

Sum of Human Food Chain Population Values: 0.00E+00

Level II Concentrations Factor: 0.00E+00

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SW PATHWAY: GW TO SW COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Potential Contamination

Fishery	Annual Production (pounds)	Type of Surface Water Body	Average Annual Flow (cfs)	Pop. Value (Pi)	Dilution Weight (Di)	Pi*Di
1 Arthur Kill	1.0	Coastal	0	0.0	2.00E-05	6.00E-07
2 Raritan Bay	1.0	Coastal	0	0.0	2.00E-05	6.00E-07
3 Kill Van Kull&Newa	1.0	Coastal	0	0.0	2.00E-05	6.00E-07

=====
Sum of (Pi*Di): 1.80E-06

Potential Human Food Chain Contamination Factor: 1.80E-07

Documentation for Arthur Kill Fishery:

A default value of 1 lb. per year was assigned since the exact location of fishery production was not identified. Ref. 40, p. 2 of 2.

Documentation for Raritan Bay Fishery:

A default value of 1 lb. per year was assigned since the actual location of fish production was not assigned. Ref. 40, p. 2 of 2.

Documentation for Kill Van Kull&Newar Fishery:

A default value of 1 lb. per year was assigned since the exact location of the fishery is unknown. Ref. 40, p. 2 of 2.

Food Chain Individual

Location of Nearest Fishery: Arthur Kill
Distance from the Probable Point of Entry: 0.00 miles
Type of Surface Water Body: Coastal Tidal Area
Dilution Weight: 0.0000200

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SW PATHWAY: GW TO SW COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
ASARCO - 08/04/97

Level of Contamination: Potential

Food Chain Individual Factor: 0.00

Documentation for Arthur Kill:

The Arthur Kill is tidally influenced and joins the Raritan River 3 miles away and the Kill Van Kull and Newark Bay 11 miles away. Ref. 35, p. 1 of 1.

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 SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT WASTE
 CHARACTERISTICS
 ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Eco- toxicity Value	Persist. Value	Mob. Value	Bio- accum. Value	Ecotoxicity/ Mobility/ Persistence/ Bioaccum. Value
Arsenic	100	1.00E+00	1.00E-02	5.00E+02	5.00E+02
Benz(a)anthracene	10000	1.00E+00	2.00E-07	5.00E+04	1.00E+02
Cadmium	1000	1.00E+00	2.00E-03	5.00E+03	1.00E+04
Chrysene	1000	1.00E+00	2.00E-07	5.00E+02	1.00E-01
Copper	100	1.00E+00	1.00E-02	5.00E+04	5.00E+04
Fluoranthene	1000	1.00E+00	2.00E-05	5.00E+03	1.00E+02
Lead	1000	1.00E+00	2.00E-05	5.00E+03	1.00E+02
Nickel	1000	1.00E+00	2.00E-05	5.00E+02	1.00E+01
Phenanthrene	1000	1.00E+00	2.00E-03	5.00E+01	1.00E+02
Pyrene	10000	1.00E+00	2.00E-05	5.00E+03	1.00E+03
Silver	10000	1.00E+00	2.00E-05	5.00E+01	1.00E+01

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SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Observed Release Hazardous Substance	Eco- toxicity Value	Persist. Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
--	---------------------------	-------------------	-------------------------	--

- N/A and/or data not specified

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SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

Ecotoxicity/Mobility/Persistence/Bioaccummulation Value from Source Substances:	5.00E+04
Ecotoxicity/Mobility/Persistence/Bioaccummulation Value from Observed Hazardous Substances:	0.00E+00
Ecotoxicity/Mobility/Persistence/Bioaccummulation Factor:	5.00E+04
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	18

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SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

- N/A and/or data not specified

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

- N/A and/or data not specified

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 SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
 ASARCO - 08/04/97

Level I Concentrations

Sensitive Environment	Distance from Probable Point of Entry to Sensitive Env. (miles)	Sensitive Environment Value
-----------------------	---	-----------------------------------

- N/A and/or data not specified

Sum of Sensitive Environments Values:	0
---------------------------------------	---

Wetlands

Wetland	Distance from Probable Point of Entry to Wetland (miles)	Wetlands Frontage (miles)
---------	--	------------------------------

- N/A and/or data not specified

Total Wetlands Frontage:	0.00 Miles	Total Wetlands Value: 0
--------------------------	------------	-------------------------

Sum of Sensitive Environments Value + Wetlands Value: 0.00E+00

Level I Concentrations Factor: 0.00E+00

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 SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
 ASARCO - 08/04/97

Level II Concentrations

Sensitive Environment	Distance from Probable Point of Entry to Sensitive Env. (miles)	Sensitive Environment Value
-----------------------	---	-----------------------------------

- N/A and/or data not specified

Sum of Sensitive Environments Values:	0
---------------------------------------	---

Wetlands

Wetland	Distance from Probable Point of Entry to Wetland (miles)	Wetlands Frontage (miles)
---------	--	------------------------------

- N/A and/or data not specified

Total Wetlands Frontage:	0.00 Miles	Total Wetlands Value: 0
--------------------------	------------	-------------------------

Sum of Sensitive Environments Value + Wetlands Value: 0.00E+00

Level II Concentrations Factor: 0.00E+00

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 SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
 ASARCO - 08/04/97

Potential Contamination

Sensitive Environments

Type of Surface Water Body	Sensitive Environment	Sensitive Environment Value
Coastal Tidal Area	1 Perigrin Falcon	50
Coastal Tidal Area	2 Least Tern	50
Coastal Tidal Area	3 Yellow Crowned Nigh	50

Wetlands

Type of Surface Water Body	Sensitive Environment	Wetlands Frontage	Wetlands Value
Coastal Tidal Area	5 wetlands	10.00	250
Coastal Tidal Area	6 wetlands	25.00	500
Coastal Tidal Area	7 wetlands	5.00	150

Documentation for Sensitive Environment Perigrin Falcon:

Records of Perigrin Falcon use within 15 miles of the site along the surface water pathway. Ref. 39, pp. 4, 8, 9 of 32.

Documentation for Sensitive Environment Least Tern:

The Least Tern which is a State Endangered species frequents areas along the TDL. Ref. 39, pp. 4, 8, 9 of 32.

Documentation for Sensitive Environment Yellow Crowned Nigh:

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SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
ASARCO - 08/04/97

The State Threatened Yellow-Crowned Night Heron has been reported along the TDL. Ref. 39, pp. 4, 8, 9 of 32.

Documentation for Sensitive Environment wetlands:

It is estimated that there are 10 miles of wetland frontage along the tidal portions of the Raritan River and Raritan Bay. Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment wetlands:

It is estimated that there are 25 miles of wetland frontage along the Arthur Kill. Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment wetlands:

It is estimated that there are five miles of wetland frontage along the Kill Van Kull and Newark Bay within the TDL. Ref. 38, p. 1 of 1.

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 SW PATHWAY: GW TO SW COMPONENT ENVIRONMENTAL THREAT TARGETS
 ASARCO - 08/04/97

Type of Surface Water Body	Sum of Sens. Environment Values(Sj)	Sum of Wetland Frontage Values(Wj)	Dilution Weight (Dj)	Dj(Wj+Sj)
Coastal Tidal Waters	150	500	2.00E-05	1.30E-02

Sum of Dj(Wj+Sj): 1.30E-02
 Sum of Dj(Wj+Sj)/10: 1.30E-03

=====

Potential Contamination Sensitive Environment Factor: 1.40E-03

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SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT LIKELIHOOD OF EXPOSURE
ASARCO - 08/04/97

Likelihood of Exposure

No.	Source ID	Level of Contamination
1	Contaminated Soil	Level II

Likelihood of Exposure Factor: 550

Documentation for Area of Contamination, Source Contaminated Soil:

The area of soil contamination is unknown, therefore an estimate of 1 square foot was used. Ref. 14, pp. 2 thru 5 of 67.

Source No.	Hazardous Substance	Depth (ft.)	Concent.	Cancer	RFD	Units
1	Arsenic	< 2	0.0E+00	4.3E-01	2.3E+01	ppm
1	Benz(a)anthracene	< 2	0.0E+00	8.8E-01	0.0E+00	ppm
1	Cadmium	< 2	0.0E+00	0.0E+00	3.9E+01	ppm
1	Chrysene	< 2	0.0E+00	8.8E+01	0.0E+00	ppm
1	Copper	< 2	0.0E+00	0.0E+00	0.0E+00	ppm
1	Fluoranthene	< 2	0.0E+00	0.0E+00	3.1E+03	ppm
1	Lead	< 2	0.0E+00	0.0E+00	0.0E+00	ppm
1	Nickel	< 2	0.0E+00	0.0E+00	1.6E+03	ppm
1	Phenanthrene	< 2	0.0E+00	0.0E+00	0.0E+00	ppm
1	Pyrene	< 2	0.0E+00	0.0E+00	2.3E+03	ppm
1	Silver	< 2	0.0E+00	0.0E+00	3.9E+02	ppm

Documentation for Source Contaminated Soil, Contaminants:

Analytical results indicate elevated levels of Arsenic, Cadmium, Copper, Lead, Nickel, and PAHs. Ref. 14, pp. 2 thru 5, 14 thru 17, 40, 43, 46, 49 of 67. The analytical data was used for screening purposes since the data was not validated.

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SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Arsenic	10000
Benz(a)anthracene	1000
Cadmium	10000
Chrysene	10
Copper	0
Fluoranthene	100
Lead	10000
Nickel	10000
Phenanthrene	0
Pyrene	100
Silver	100

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CHARACTERISTICS
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Toxicity Factor:	1.00E+04
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	18

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SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT TARGETS
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Targets

Level I Population: 0.0 Value: 0.00

Documentation for Level I Population:

There are no residents, daycare facilities, or schools within 200 feet of known contamination. Ref. 44, p. 1 of 1.

Level II Population: 0.0 Value: 0.00

Documentation for Level II Population:

There are no residents, daycare facilities, or schools within 200 feet of known soil contamination. Ref. 44, p. 1 of 1.

Workers: 100.0 Value: 5.00

Documentation for Workers:

There are currently 9 industrial tenants at the facility. It is estimated that there are 100 or fewer workers. Ref. 3, p. 13 of 17.

Resident Individual: Potentia Value: 0.00

Resources: NO Value: 0.00

Documentation for Resources:

There are no resources identified. Ref. 3, p. 13 of 17.

Terrestrial Sensitive Environment Value

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ASARCO - 08/04/97

- N/A and/or data not specified

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Terrestrial Sensitive Environments Factor: 0.00

Documentation for Terrestrial Environment :

No terrestrial sensitive environments identified. Ref. 39, pp. 1
of 32.

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 SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT LIKELIHOOD OF
 EXPOSURE
 ASARCO - 08/04/97

Likelihood of Exposure

No. Source ID	Level of Contamination	Attractiveness/ Accessibility	Area of Contam. (sq. feet)
1 Contaminated Soil	Level II	5	1
<hr/>			
Highest Attractiveness/Accessibility Value:		5	
Sum of Eligible Areas Of Contamination (sq. feet):			1
Area of Contamination Value:		5	

Likelihood of Exposure Factor Category: 5

Documentation for Attractiveness/Accessibility, Source Contaminated Soil:

The ASARCO facility is surrounded by a fence. Ref. p. 1 of 1.

Source No.	Hazardous Substance	Depth (ft.)	Concent.	Cancer	RFD	Units
1	Arsenic	< 2	0.0E+00	4.3E-01	2.3E+01	ppm
1	Benz(a)anthracene	< 2	0.0E+00	8.8E-01	0.0E+00	ppm
1	Cadmium	< 2	0.0E+00	0.0E+00	3.9E+01	ppm
1	Chrysene	< 2	0.0E+00	8.8E+01	0.0E+00	ppm
1	Copper	< 2	0.0E+00	0.0E+00	0.0E+00	ppm
1	Fluoranthene	< 2	0.0E+00	0.0E+00	3.1E+03	ppm
1	Lead	< 2	0.0E+00	0.0E+00	0.0E+00	ppm
1	Nickel	< 2	0.0E+00	0.0E+00	1.6E+03	ppm
1	Phenanthrene	< 2	0.0E+00	0.0E+00	0.0E+00	ppm
1	Pyrene	< 2	0.0E+00	0.0E+00	2.3E+03	ppm
1	Silver	< 2	0.0E+00	0.0E+00	3.9E+02	ppm

Documentation for Source Contaminated Soil, Contaminants:

Analytical results indicate elevated levels of Arsenic, Cadmium, Copper, Lead, Nickel, and PAHs. Ref. 14, pp. 2 thru 5, 14 thru 17, 40, 43, 46, 49 of 67. The analytical data was used for screening purposes since the data was not validated.

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CHARACTERISTICS
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CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Arsenic	10000
Benz(a)anthracene	1000
Cadmium	10000
Chrysene	10
Copper	0
Fluoranthene	100
Lead	10000
Nickel	10000
Phenanthrene	0
Pyrene	100
Silver	100

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CHARACTERISTICS
ASARCO - 08/04/97

Toxicity Factor:	1.00E+04
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	18

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SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT TARGETS
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Nearby Individual

Population within 1/4 mile: 31.0

Nearby Individual Value: 1.0

Population Within 1 Mile

Travel Distance Category	Number of People	Value
> 0 to 1/4 mile	31.0	0.1
> 1/4 to 1/2 mile	92.0	0.1
> 1/2 to 1 mile	6194.0	3.3

Population Within 1 Mile Factor: 3.0

Documentation for Population > 0 to 1/4 mile Distance Category:

There are 31 residents between 0 and 0.25 miles of the site. Ref.
23, pp. 18, 19, 27, 28 of 28.

Documentation for Population > 1/4 to 1/2 mile Distance Category:

There are 92 residents between 0.25 and 0.5 miles of the site.
Ref. 23, pp. 18, 19, 27, 28 of 28.

Documentation for Population > 1/2 to 1 mile Distance Category:

There are 6,194 residents between 0.5 and 1 mile of the site. Ref.
23, pp. 18, 19, 27, 28 of 28.

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AIR PATHWAY LIKELIHOOD OF RELEASE
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OBSERVED RELEASE

No. Sample ID	Distance (miles)	Level of Contamination
- N/A and/or data not specified		

=====

Observed Release Factor: 0

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AIR PATHWAY LIKELIHOOD OF RELEASE
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Gas Migration Potential

GAS POTENTIAL TO RELEASE

Source ID	Source Type	Gas Contain. Value (A)	Gas Source Type Value (B)	Gas Migrtn. Potent. Value (C)	Sum (B+C)	Gas Potential to Rel. Value A(B+C)
Contaminated Soil	Contaminated Soil	7	19	6	25	175

Gas Potential to Release Factor: 175

Documentation for Gas Containment, Source Contaminated Soil:

It is estimated that contaminated soils are covered with substantial ammounts of vegetation in landscaped areas. Ref. 6, p. 2 of 3.

Documentation for Source Type, Source Contaminated Soil:

Analytical results indicate that soils are contaminated. Ref. 14, pp. 3, 13 thru 16 of 67.

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AIR PATHWAY LIKELIHOOD OF RELEASE
ASARCO - 08/04/97

Source: Contaminated Soil

Gaseous Hazardous Substance	Hazardous Substance Gas Migration Potential Value
Benz(a)anthracene	6
Chrysene	6
Fluoranthene	6
Phenanthrene	11
Pyrene	6

Average of Gas Migration Potential Value for 3 Hazardous Substances: 7.667

Gas Migration Potential Value From Table 6-7:

6

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AIR PATHWAY LIKELIHOOD OF RELEASE
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Particulate Migration Potential

PARTICULATE POTENTIAL TO RELEASE

Source ID	Source Type	Partic. Contain. Value (A)	Partic. Source Type Value (B)	Partic. Migrtn. Potent. Value (C)	Sum (B+C)	Partic. Potential to Rel. Value A(B+C)
Contaminated Soil	Contaminated Soil	7	22	6	28	196

Particulate Potential to Release Factor: 196

Documentation for Particulate Containment, Source Contaminated Soil:

The contaminated soils are estimated to be covered with uncontaminated soil less than 1' thick, however landscaped areas are heavily vegetated. Ref. 6, p. 2 of 3.

Documentation for Source Type, Source Contaminated Soil:

Analytical results indicate that soils are contaminated. Ref. 14, pp. 3, 13 thru 16 of 67.

Documentation for Particulate Migration Potential:

Based on HRS Figure 6-2. Ref. 1, p. 1 of 1.

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AIR PATHWAY WASTE CHARACTERISTICS
ASARCO - 08/04/97

Source: Contaminated Soil

Particulate Hazardous Substance

Arsenic
Benz(a)anthracene
Cadmium
Chrysene
Copper
Fluoranthene
Lead
Nickel
Phenanthrene
Pyrene
Silver

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AIR PATHWAY WASTE CHARACTERISTICS
ASARCO - 08/04/97

Source: 1 Contaminated Soil

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Gas Mobility Value	Particulate Mobility Value	Toxicity/ Mobility Value
Arsenic	10000	NA	2.00E-04	2.00E+00
Benz(a)anthracene	1000	2.00E-03	2.00E-04	2.00E+00
Cadmium	10000	NA	2.00E-04	2.00E+00
Chrysene	10	2.00E-04	2.00E-04	2.00E-03
Copper	0	NA	2.00E-04	0.00E+00
Fluoranthene	100	2.00E-03	2.00E-04	2.00E-01
Lead	10000	NA	2.00E-04	2.00E+00
Nickel	10000	NA	2.00E-04	2.00E+00
Phenanthrene	0	2.00E-02	2.00E-04	0.00E+00
Pyrene	100	2.00E-03	2.00E-04	2.00E-01
Silver	100	NA	2.00E-04	2.00E-02

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AIR PATHWAY WASTE CHARACTERISTICS
ASARCO - 08/04/97

Hazardous Substances Found in an Observed Release

Sample Observed Release		Particulate	Gas
ID	Hazardous Substance	Toxicity/ Mobility Value	Toxicity/ Mobility Value

- N/A and/or data not specified

Documentation for Particulate Mobility:

Based on HRS Figure 6-2 and 6-3. Ref. 1, p. 1 of 1.

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Toxicity/Mobility Value from Source Hazardous Substances:	2.00E+00
Toxicity/Mobility Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Mobility Factor:	2.00E+00
Sum of Source Hazardous Waste Quantity Values:	2.94E-05
Hazardous Waste Quantity Factor:	10
Waste Characteristics Factor Category:	2

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Actual Contamination

No. Sample ID	Distance (miles)	Level of Contamination
- N/A and/or data not specified		

Potential ContaminationDistance Categories Subject
to Potential Contamination

	Population	Value
Onsite	100.0	5.3000
> 0 to 1/4 mile	31.0	1.3000
> 1/4 to 1/2 mile	92.0	0.3000
> 1/2 to 1 mile	6194.0	8.3000
> 1 to 2 miles	45471.0	26.6000
> 2 to 3 miles	47809.0	12.0000
> 3 to 4 miles	148908.0	22.9000

Potential Contaminantion Factor: 77.0000

Documentation for Population Onsite Distance Category:

It is estimated that there are 100 or less workers on-site. Ref.
3, p. 13 of 17.

Documentation for Population > 0 to 1/4 mile Distance Category:

There are 31 persons within 0 to 0.25 miles of the site. Ref. 23,
pp. 18, 19, 27, 28 of 28.

Documentation for Population > 1/4 to 1/2 mile Distance Category:

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There are 92 persons in the 0.25 to 0.5 mile radius of the site.
Ref. 23, pp. 18, 19, 27, 28 of 28.

Documentation for Population > 1/2 to 1 mile Distance Category:

There are 6,194 persons in the 0.5 to 1 mile radius. Ref. 23, pp.
18, 19, 27, 28 of 28.

Documentation for Population > 1 to 2 miles Distance Category:

There are 45,471 persons in the 1 to 2 mile radius. Ref. 23, pp.
18, 19, 27, 28 of 28.

Documentation for Population > 2 to 3 miles Distance Category:

There are 47809 persons in the 2 to 3 mile radius. Ref. 23, pp.
18, 19, 27, 28 of 28.

Documentation for Population > 3 to 4 miles Distance Category:

There are 148,908 persons in the 3 to 4 mile radius. Ref. 23, pp.
18, 19, 27, 28 of 28.

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AIR PATHWAY TARGETS
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Nearest Individual Factor

Level of Contamination: Potential
Distance in miles: 0 to 1/8

Nearest Individual Value: 20

Documentation for Nearest Individual:

The nearest individual is located approximately 0.25 miles from the site. Ref. 43, p. 1 of 1.

Resources

Resource Use: NO

Resource Value: 0

Documentation for Resources:

No resources identified. Ref. 3, p. 13 of 17.

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Actual Contamination, Sensitive Environments

Sensitive Environment	Distance (miles)	Sensitive Environment Value
- N/A and/or data not specified		

Actual Contamination, Wetlands

Distance Category	Wetland Acreage	Wetland Acreage Value
- N/A and/or data not specified		

=====

Sensitive Environments Actual Contamination Factor: 0.000
(Sum of Sensitive Environments + Wetlands Values)

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Potential Contamination, Sensitive Environments

Sensitive Environment	Distance (miles)	Sensitive Environment Value	Distance Weight	Weighted Value/10
- N/A and/or data not specified				

Potential Contamination, Wetlands

Distance Category	Wetland Acreage	Wetland Acreage Value	Distance Weight	Weighted Value/10
> 3 to 4 miles	450.0	450.0	0.0014	0.063
> 2 to 3 miles	313.0	350.0	0.0023	0.081
> 1 to 2 miles	179.0	175.0	0.0051	0.089
> 1/2 to 1 mile	27.0	25.0	0.0160	0.040
> 1/4 to 1/2 mile	4.0	25.0	0.0540	0.135

Total Wetland Acreage: 973.0

Sum of Wetland Weighted Acreage Values/10: 0.408

=====

Sensitive Environment Potential Contamination Factor: 0.408

Documentation for Sensitive Environment Wetland:

There are 4 acres of wetlands between 0.25 and 0.5 miles of the site. Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment Wetland:

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There are 27 acres of wetland between 0.5 and 1 mile of the site.
Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment Wetland:

There are 179 acres of wetlands between 1 and 2 miles of the site.
Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment Wetland:

There are 313 acres of wetlands between 2 and 3 miles of the site.
Ref. 38, p. 1 of 1.

Documentation for Sensitive Environment Wetland:

There are 450 acres of wetlands between 3 and 4 miles of the site.
Ref. 38, p. 1 of 1.

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